

REMARKS

Applicants request reconsideration and allowance of the subject application in view of the foregoing amendments and the following remarks.

Claims 1, 6-7, 9-13, 18-19, and 21-25 are pending in this application, with Claims 1 and 13 being independent.

Claims 2-5 and 14-17 have been cancelled without prejudice to or disclaimer of the subject matter contained therein. Claims 7, 11, 18, 23, and 25 have been amended. The specification has been amended to correct minor errors and to improve its form. No new matter has been added.

Claims 1-7, 9-19, and 21-25 were provisionally rejected as being unpatentable over Claims 1-21 of Application No. 09/818,581 under the judicially created doctrine of obviousness-type double patenting. Applicants request that the provisional rejection be held in abeyance until this application or Application No. 09/818,581 is deemed to be in condition for allowance.

Claims 1, 2, 4, 12-14, 16, and 24 have been rejected under 35 U.S.C. § 102(e) as being obvious over U.S. Patent No. 6,240,384 B1 (“Kagoshima”). Claims 3, 9, 15, and 21 have been rejected under 35 U.S.C. § 103(a) as being obvious over Kagoshima in view of U.S. Patent No. 6,366,883 B1 (“Campbell”). Claims 5, 6, 17, and 18 have been rejected under 35 U.S.C. § 103(a) as being obvious over Kagoshima in view of U.S. Patent No. 5,913,193 (“Huang”). Claims 7 and 19 have been rejected under 35 U.S.C. § 103(a) as being obvious over Kagoshima in view of Huang, and further in view of Campbell. Claims 10 and 22 have been rejected under 35 U.S.C. § 103(a) as being obvious over Kagoshima in view of U.S. Patent No.

6,490,563 B2 (“Hon”). Claims 11 and 23 have been rejected under 35 U.S.C. § 103(a) as being obvious over Kagoshima in view of Huang, and further in view of Hon. Claim 25 has been rejected under 35 U.S.C. § 103(a) as being obvious over Kagoshima in view of Huang and Campbell, and further in view of Hon. These rejections are respectfully traversed.

The present invention concerns processes that occur during synthesization of speech. Therefore, input text (a text to be synthesized) is known in advance of synthesization. A candidate unit (before) can be prepared as the synthesis unit, and a target unit does not exist. After the prosody of the input text is presumed, a candidate (or synthesis) unit (after) can be generated by modifying the candidate (or synthesis) unit (before) in accordance with its prosody parameter. The difference between the candidate unit (before) and the candidate unit (after) is defined as a modification distortion.

As recited in independent Claims 1 and 13, a modification distortion between synthesis units before and after modification is obtained.

Applicants submit that the present invention is completely different from Kagoshima at least with respect to the definition of a “distortion,” to construction, and to whether a synthesis unit is selected in advance or during synthesization. Accordingly, a person of ordinary skill in the art, upon reading the disclosure of Kagoshima, could not conceive the invention.

Kagoshima relates to a speech synthesis method. According to Kagoshima, training speech segments T_i and phonetic contexts P_i associated therewith are extracted in a synthesis unit generator 11 of a synthesis unit training section 1. A number of speech segments S_j are prepared. Then, the pitch and duration of input speech segments S_j are altered to be equal

to those included in phonetic context P_i . Speech synthesis is performed by using the input speech segments S_j in accordance with all phonetic contexts P_i , and synthesis speech segments G_{ij} are generated. (Col. 8, line 39 to col. 9, line 6.)

Once the synthesis speech segments G_{ij} have been generated, a distortion e_{ij} of each synthesis speech segment G_{ij} is evaluated by finding the distance between the synthesis speech segment G_{ij} and training speech segment T_i . (Col. 9, lines 31-45.) Synthesis units D_k are then selected from synthesis units of number N designated from among the input speech segments S_j , on the basis of the distortion e_{ij} . (Col. 9, lines 61-65.)

That is to say, Kagoshima teaches preparation of two units, a candidate unit (before) and a target unit. Following the preparation, the candidate unit (before) is synthesized in accordance with the prosody held by the target unit, and a candidate unit (after) is generated. Then, the difference between the candidate unit (after) and the target unit is defined as a “distortion,” as opposed to a difference between a candidate (or synthesis) unit (before) and the candidate (or synthesis) unit (after), as in the invention.

Additionally, the steps taught by Kagoshima are processes conducted as an “advance selection of a synthesis unit” and are not performed during synthesization. Advance selection of the synthesis unit is the process for selecting a synthesis unit to be registered in a synthesis unit inventory. Since registering all synthesis units existing in a speech database is usually inefficient, generally one (or a plurality) of synthesis sets is selected from the speech database and registered in the synthesis unit inventory.

Accordingly, Applicants submit that Kagoshima fails to teach or suggest at least “obtaining a modification distortion between synthesis units before and after modification,”

as recited in Claims 1 and 13. Also, because the choosing of synthesis units D_k in Kagoshima is based on the “distortion” e_{ij} between synthesis speech segments and training speech segments, and not on the modification distortion of the invention, the patent also does not teach or suggest “selecting synthesis units based on the modification distortion obtained by (in) said distortion obtaining means (step),” nor, in turn, performing speech synthesis based on the units selected based on the modification distortion.

Applicants also submit that none of the secondary references, whether taken alone or in the combinations proposed in the Office Action, addresses the deficiencies of Kagoshima with respect to the invention as claimed.


Therefore, Applicants submit that the independent claims patentably distinguish the invention over the cited art. Reconsideration and withdrawal of the §§ 102 and 103 rejections are respectfully requested.

Applicants submit that the dependent claims are allowable for the same reasons that the base claims from which they depend are allowable, and further due to the additional features that they recite. Individual consideration of the dependent claims is requested.

Applicants submit that the application is in condition for allowance. Favorable consideration and passage to issue are respectfully requested.

Applicants' undersigned attorney may be reached in Washington, D.C. by telephone at (202) 530-1010. All correspondence should continue to be directed to the below-listed address.

Respectfully submitted,



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